Small Business Innovation Research/Small Business Tech Transfer

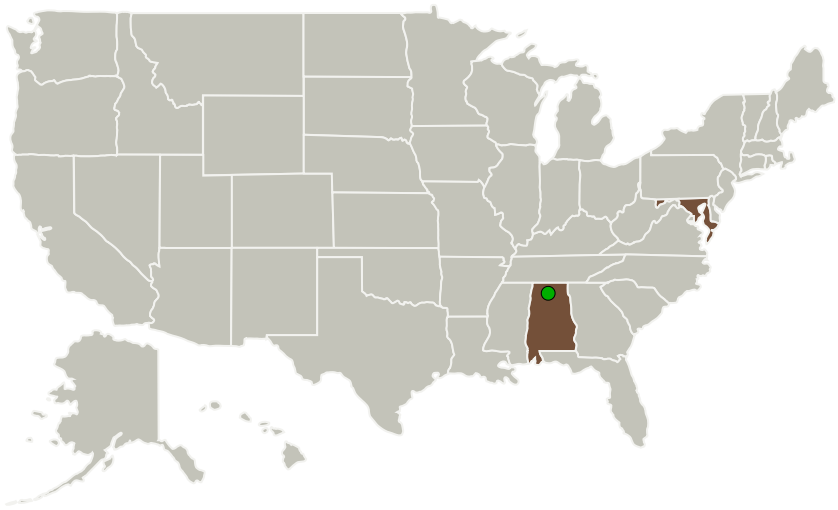
Trap-Door-Buffer Enhanced Fourier Spectrum Interferometer, Phase I

Completed Technology Project (2017 - 2017)

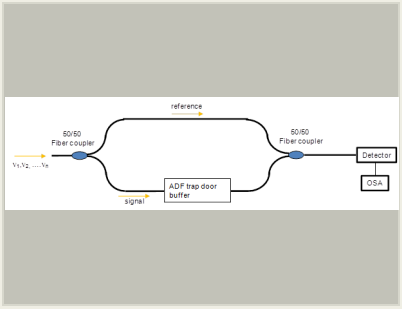
Project Introduction

To address NASA's need for slow- and fast-light technologies, X-wave Innovations, Inc. (XII) proposes a fiber-based ADF trap-door-buffer FTI with more powerful spectrum resolving power than FTI supported by conventional dispersion-dependant slow-light. For the Phase I program, XII will prototype a fiber-based ADF trap-door-buffer FTI and demonstrate the feasibility of the proposed technique for high delay-time bandwidth and enhanced spectral resolution. For the Phase II program, XII will focus on refining the prototype system design and development with improved hardware and software. For the Phase III program, XII will focus on optimizing the prototype performance and collaborating with our commercial partners to package the sensor technology into a commercially-available system.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
X-wave Innovations	Lead Organization	Industry Women-Owned Small Business (WOSB)	Gaithersburg, Maryland
Marshall Space Flight Center(MSFC)	Supporting Organization	NASA Center	Huntsville, Alabama



Trap-door-buffer Enhanced Fourier Spectrum Interferometer, Phase I Briefing Chart Image

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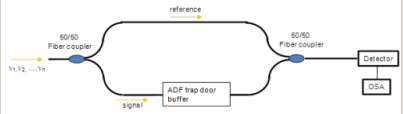
Primary U.S. Work Locations	
Alabama	Maryland

Project Transitions

June 2017: Project Start

December 2017: Closed out

Images



Briefing Chart Image
Trap-door-buffer Enhanced Fourier Spectrum Interferometer, Phase I Briefing Chart Image *(https://techport.nasa.gov/image/135801)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
X-wave Innovations

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

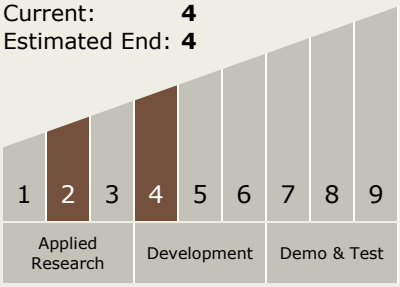
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Carlos Rentel

Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



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Completed Technology Project (2017 - 2017)

Technology Areas

Primary:

- TX17 Guidance, Navigation, and Control (GN&C)
  - TX17.2 Navigation Technologies
    - TX17.2.3 Navigation Sensors

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System